

Fig. 1

A cross-sectional view of a semiconductor device. The structure consists of a substrate (1) with a gate electrode (3) and a diffused layer (2). A first metal interconnection (5) is formed on the substrate, with a first plug (4) and a first metal layer (8) on top. A second metal interconnection (6) is formed on the first metal layer, with a second plug (6) and a second metal layer (10) on top. A ferroelectric film (12) is formed on the second metal layer, with a lower electrode (11) and an upper electrode (13) on top. A passivation film (17) is formed on the upper electrode. The device is labeled with various components: 1 SEMICONDUCTOR SUBSTRATE, 2 DIFFUSED LAYER, 3 GATE ELECTRODE, 4 1ST PLUG, 5 1ST METAL INTERCONNECTION (BIT LINE), 6 2ND PLUG, 7 INTERLAYER INSULATOR, 8 1ST METAL, 9 METAL NITRIDE, 10 2ND METAL, 11 LOWER ELECTRODE, 12 FERROELECTRIC FILM, 13 UPPER ELECTRODE, 16 2ND METAL INTERCONNECTION, and 17 PASSIVATION FILM.

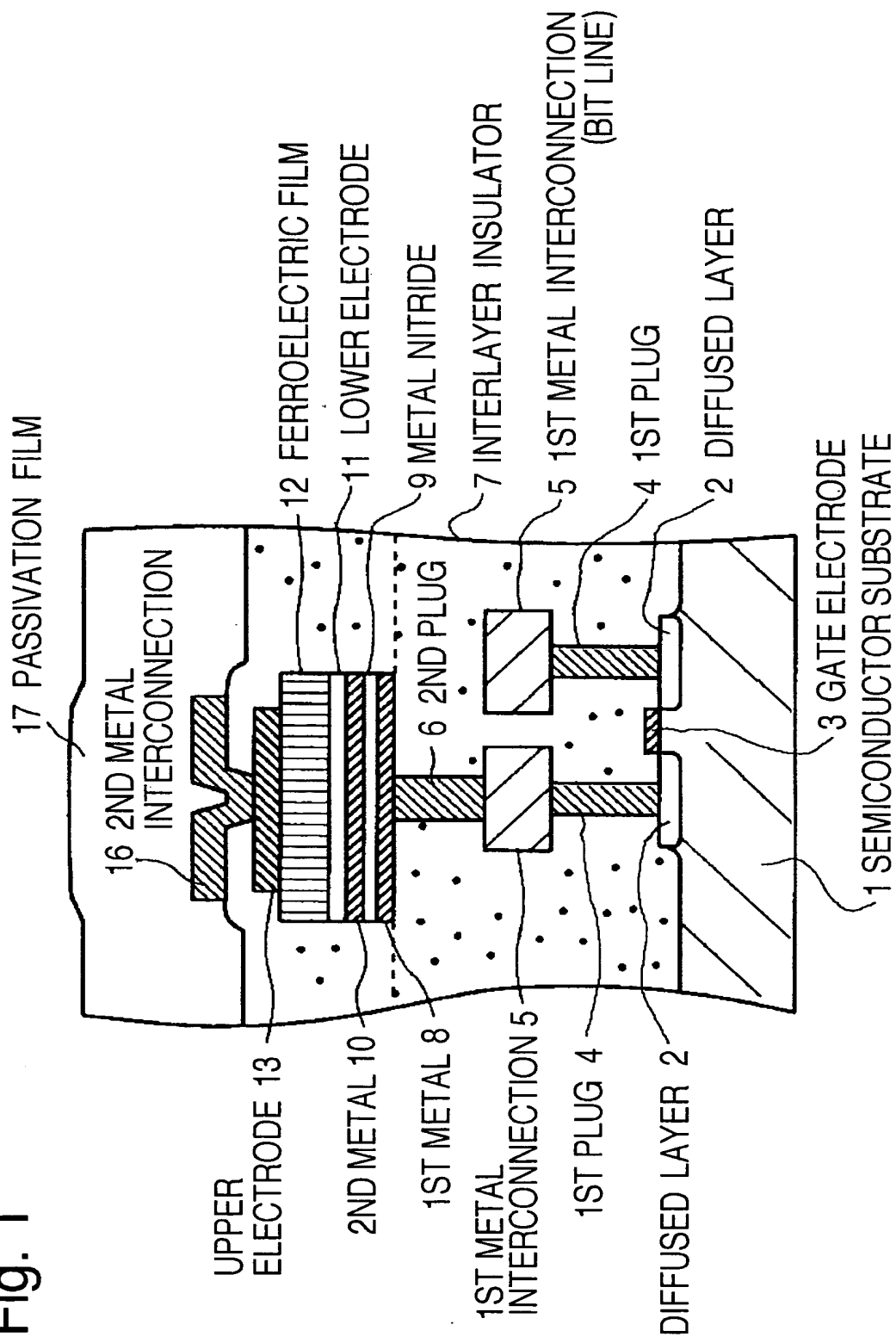


Fig. 2A

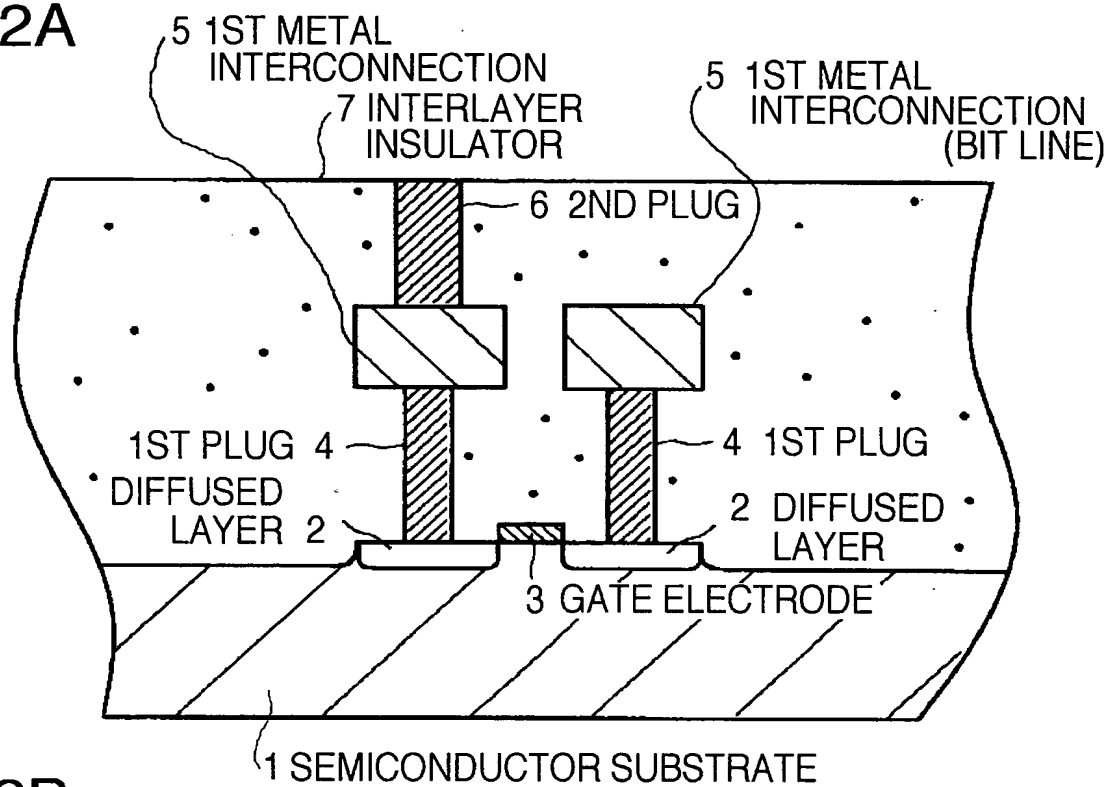


Fig. 2B

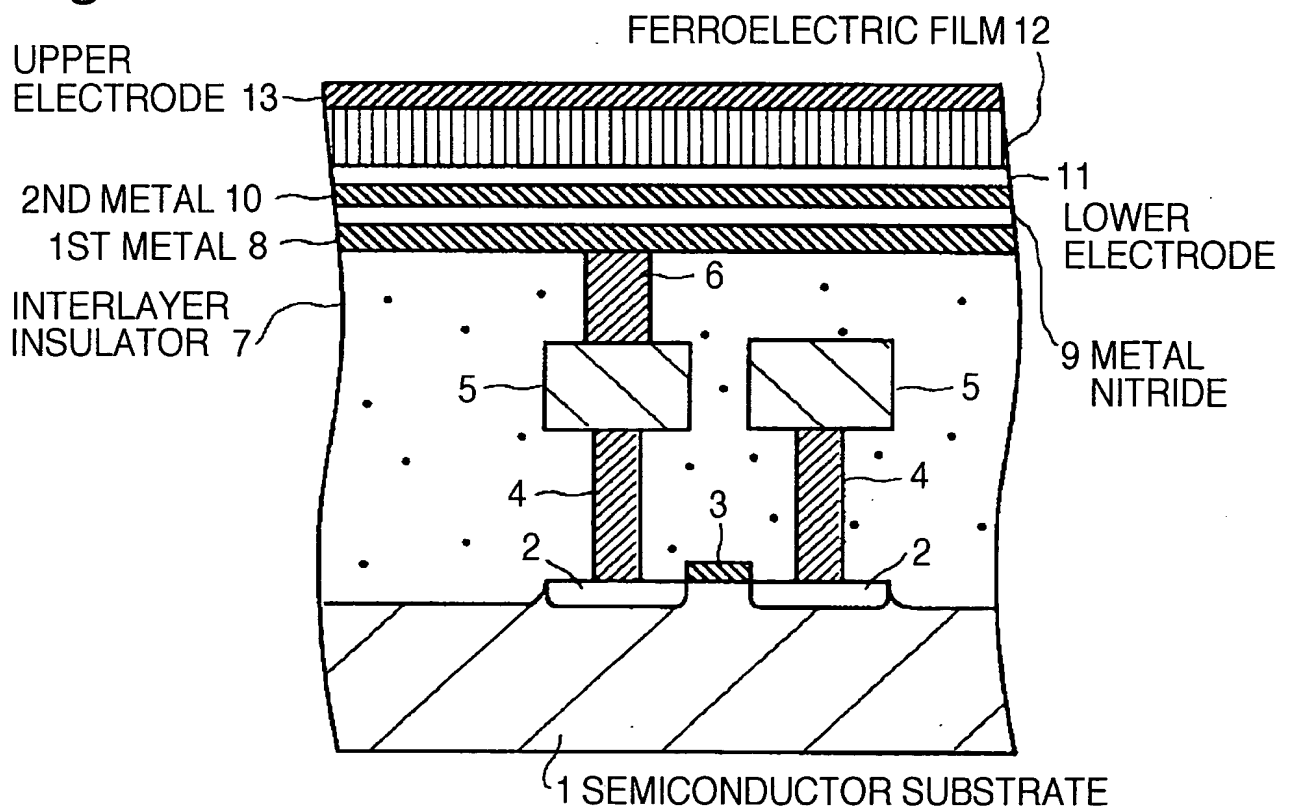


Fig. 2C

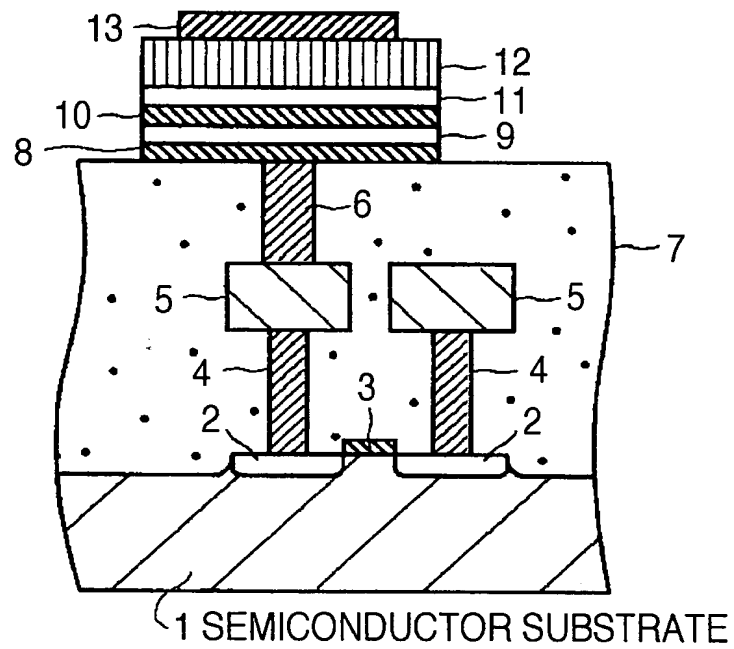


Fig. 2D

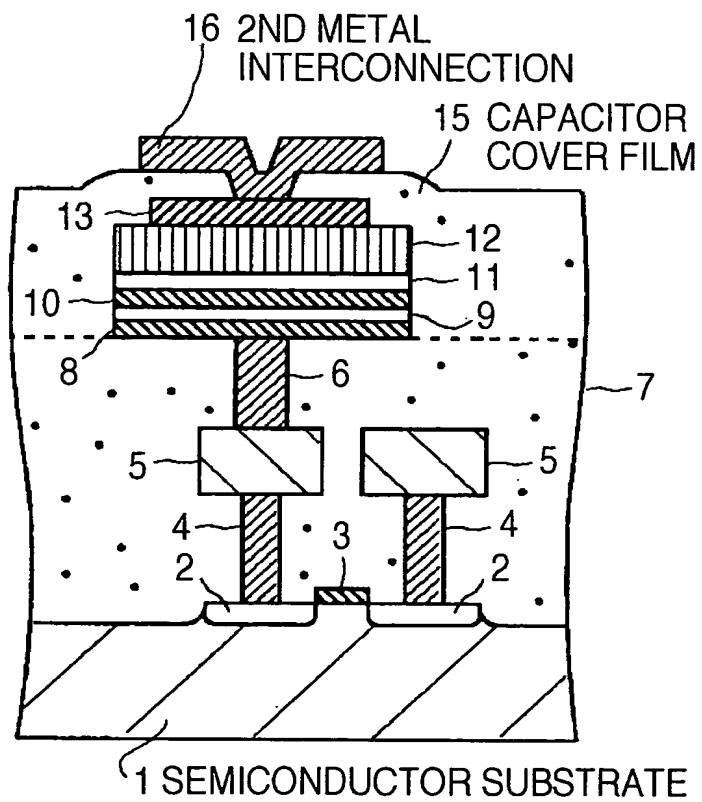


Fig. 3

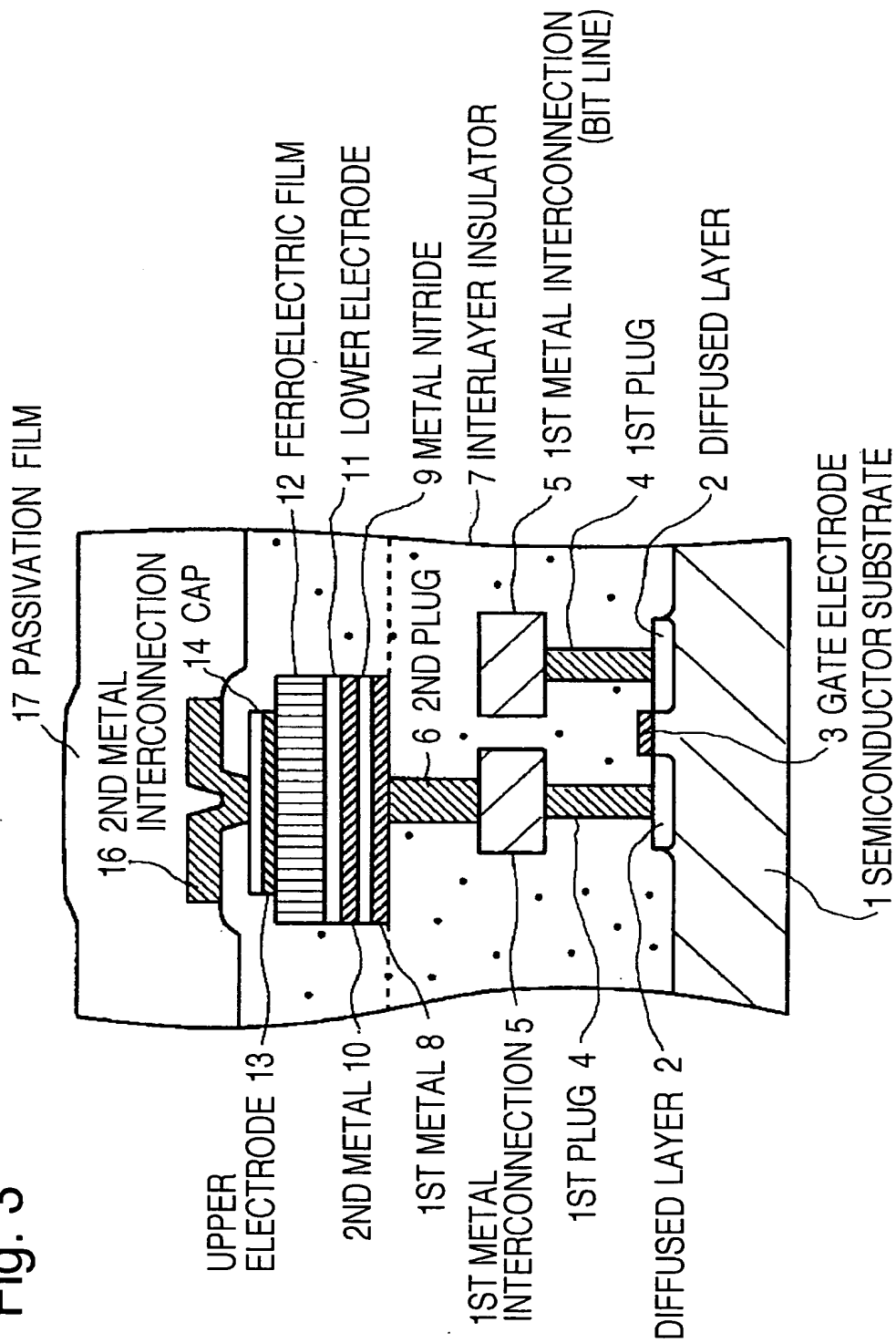


Fig. 4A

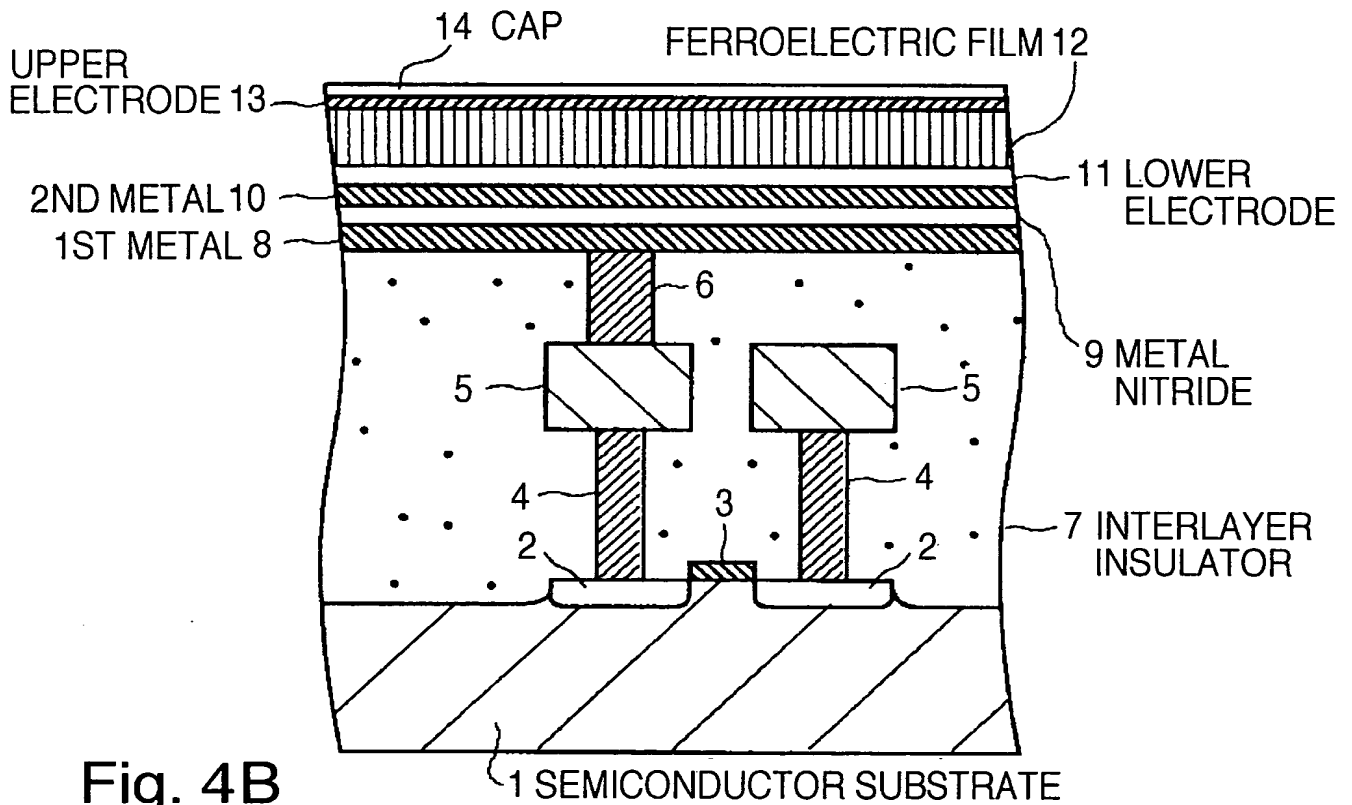
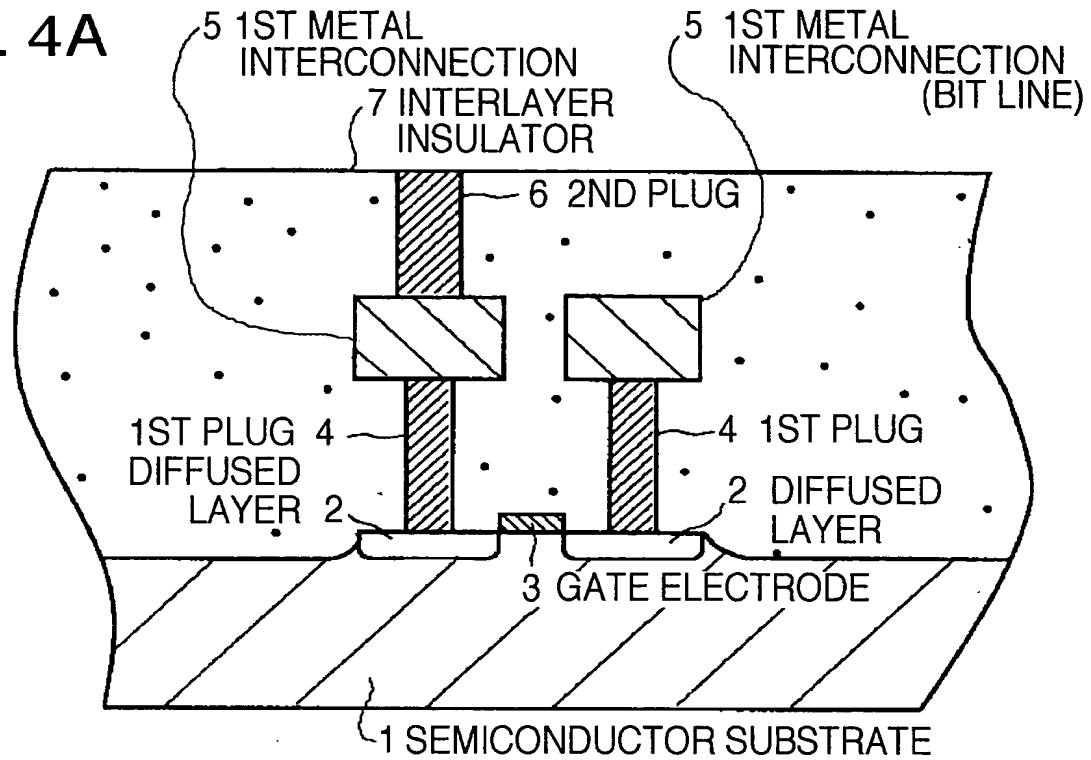


Fig. 4B

Fig. 4C

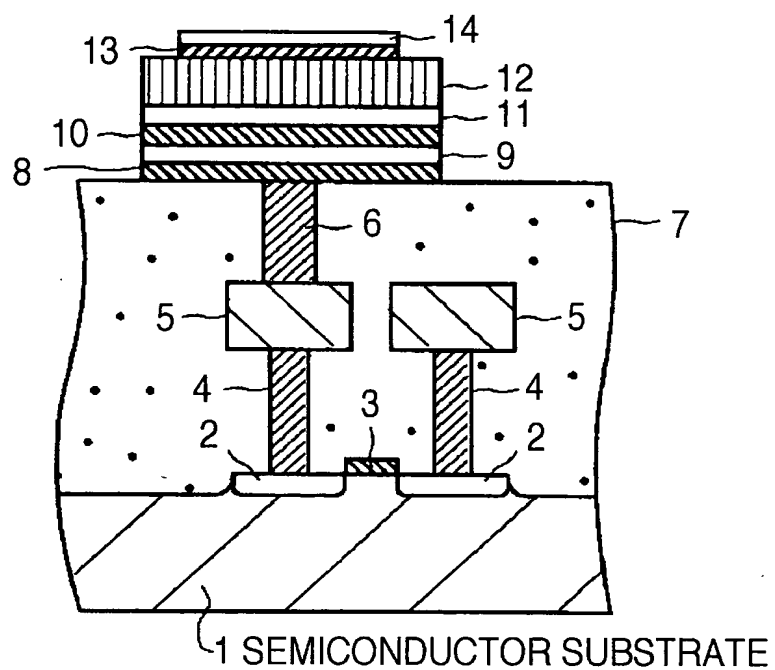


Fig. 4D

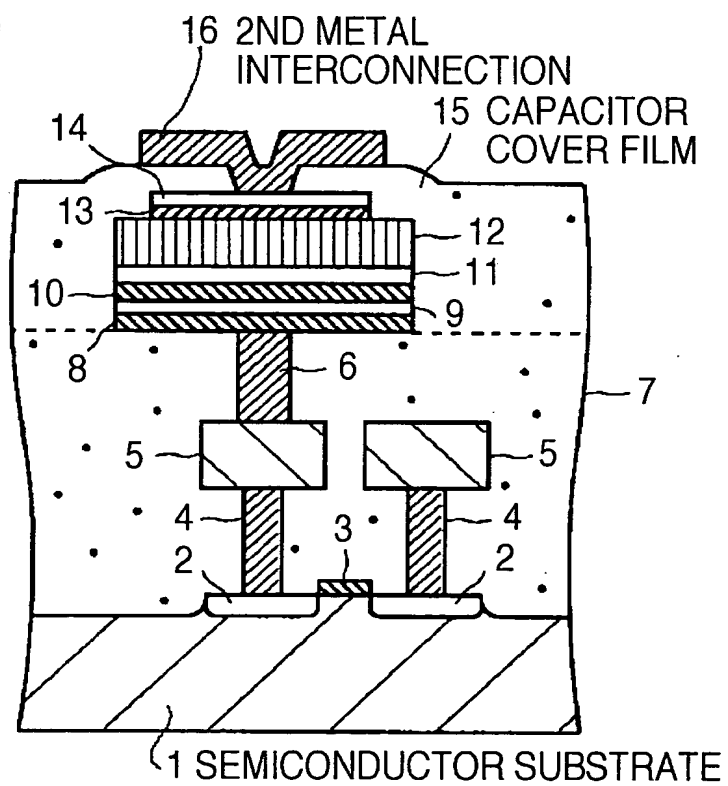


Fig. 5

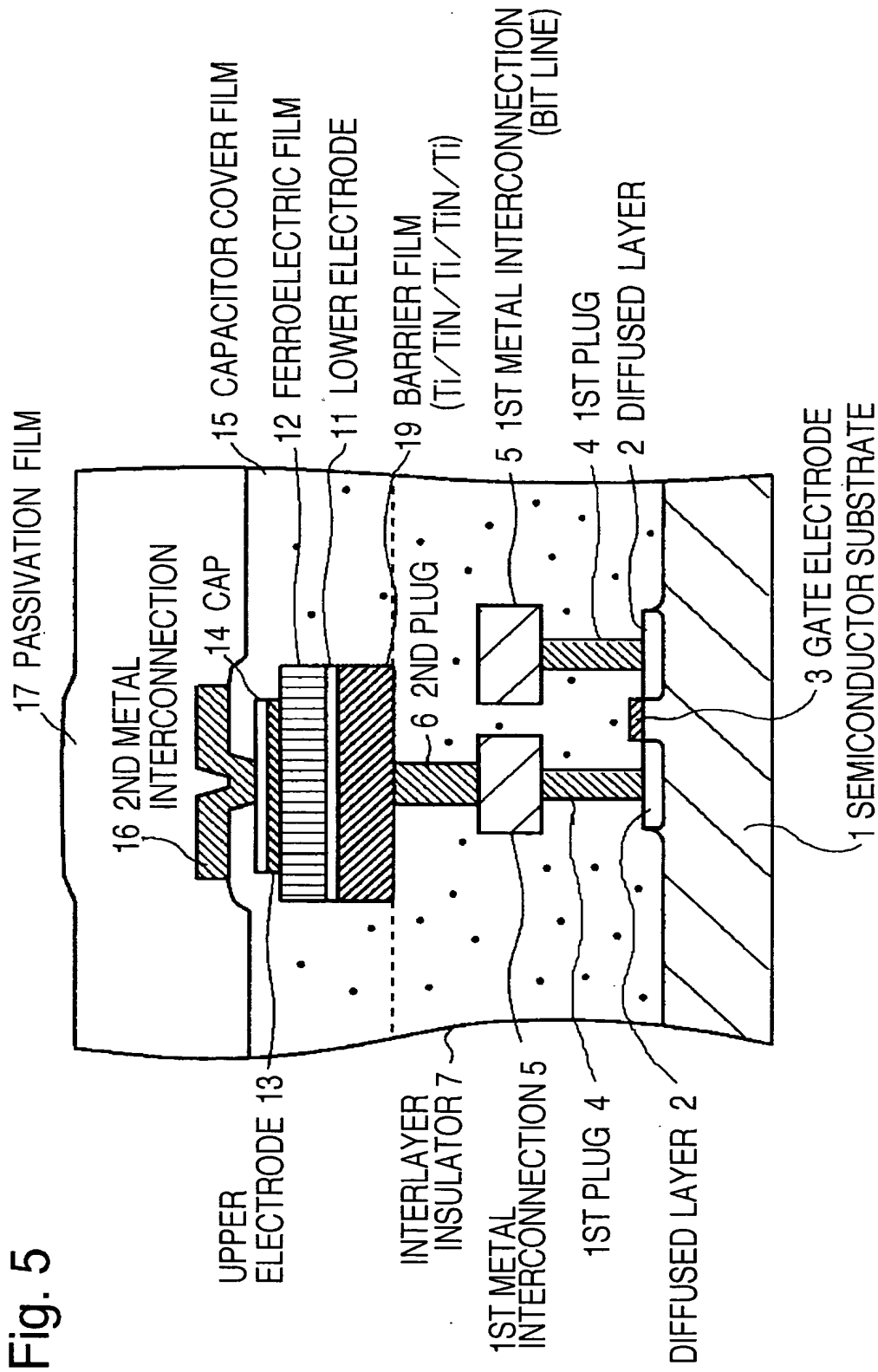


Fig. 6

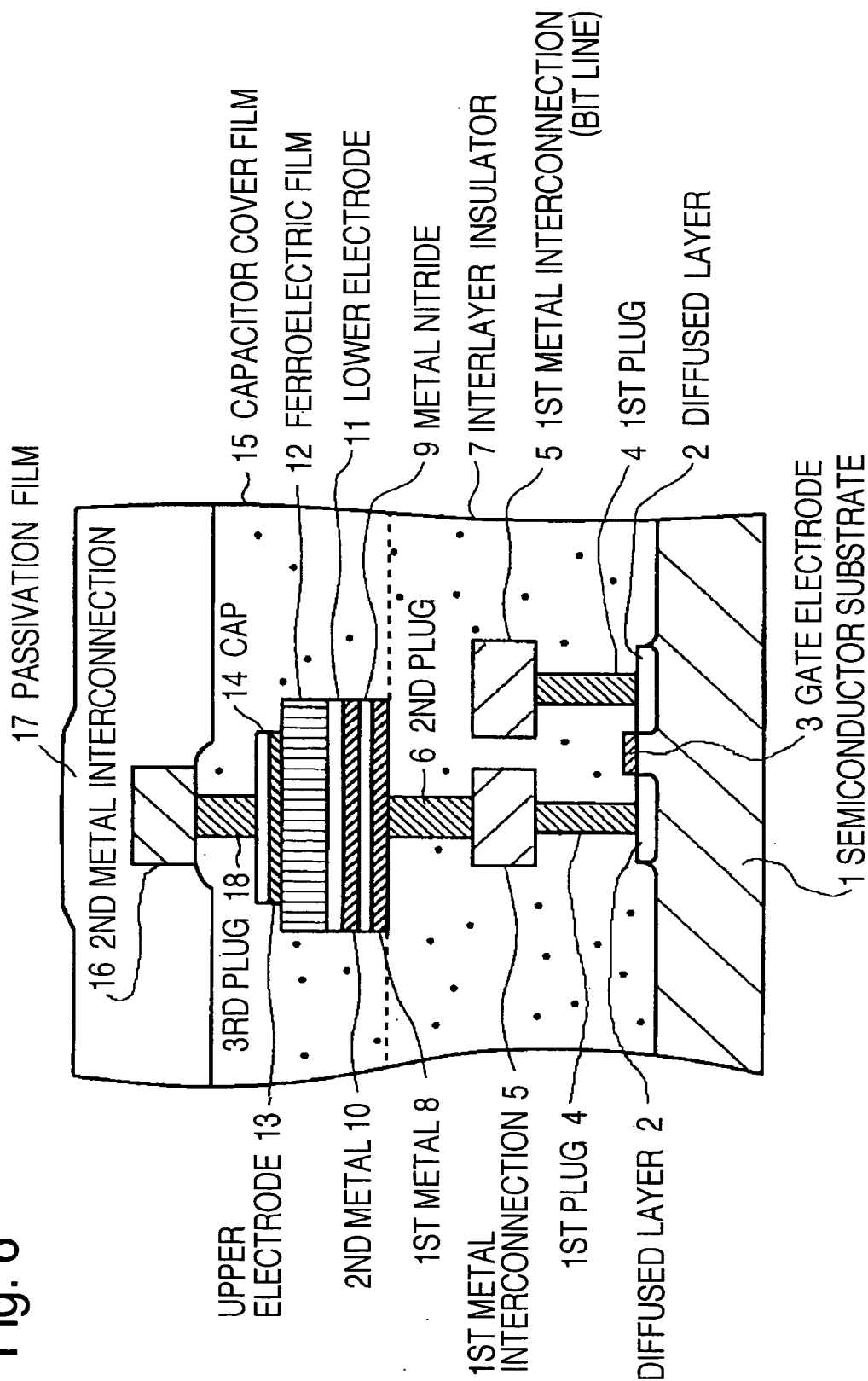


Fig. 7 PRIOR ART

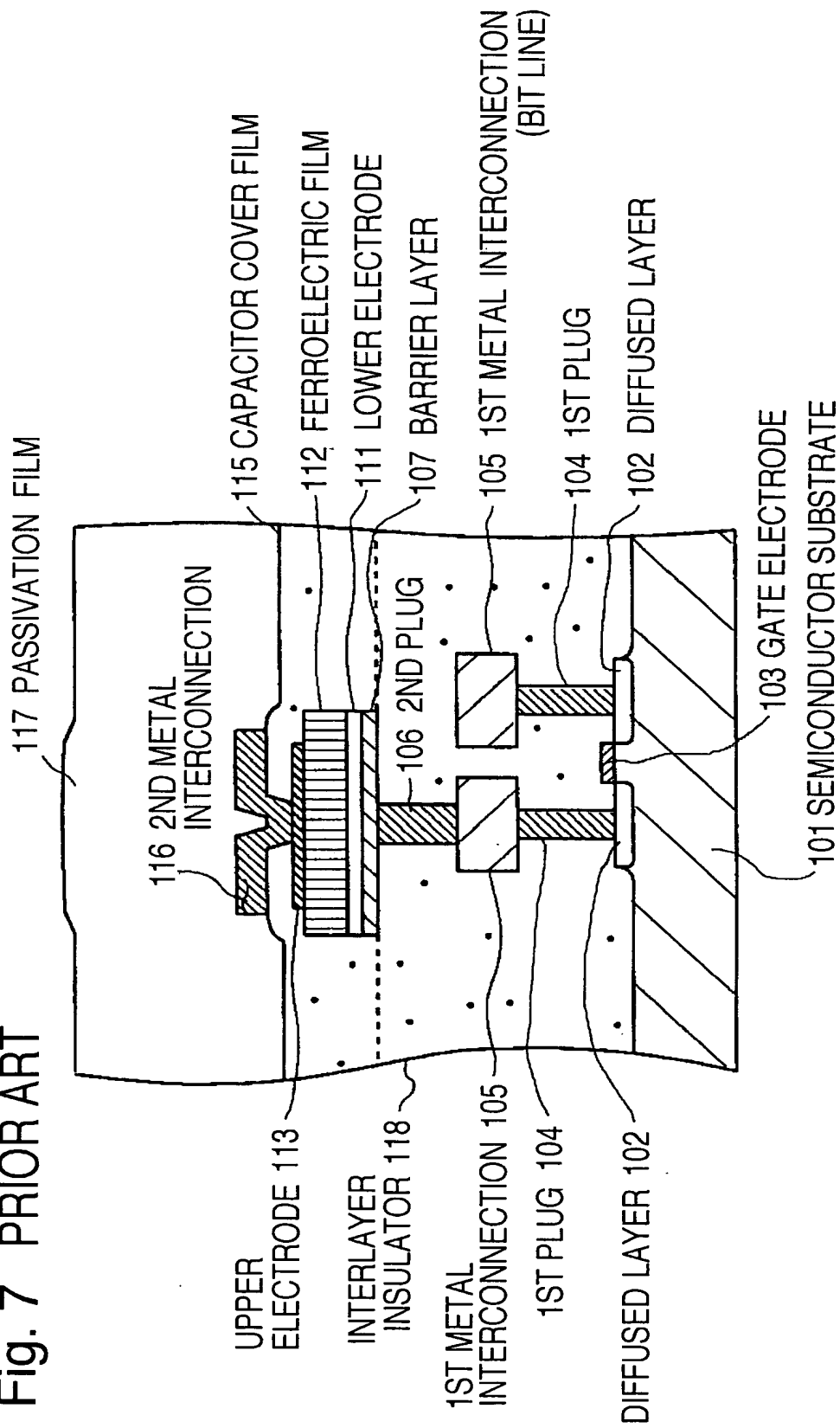


Fig. 8A PRIOR ART

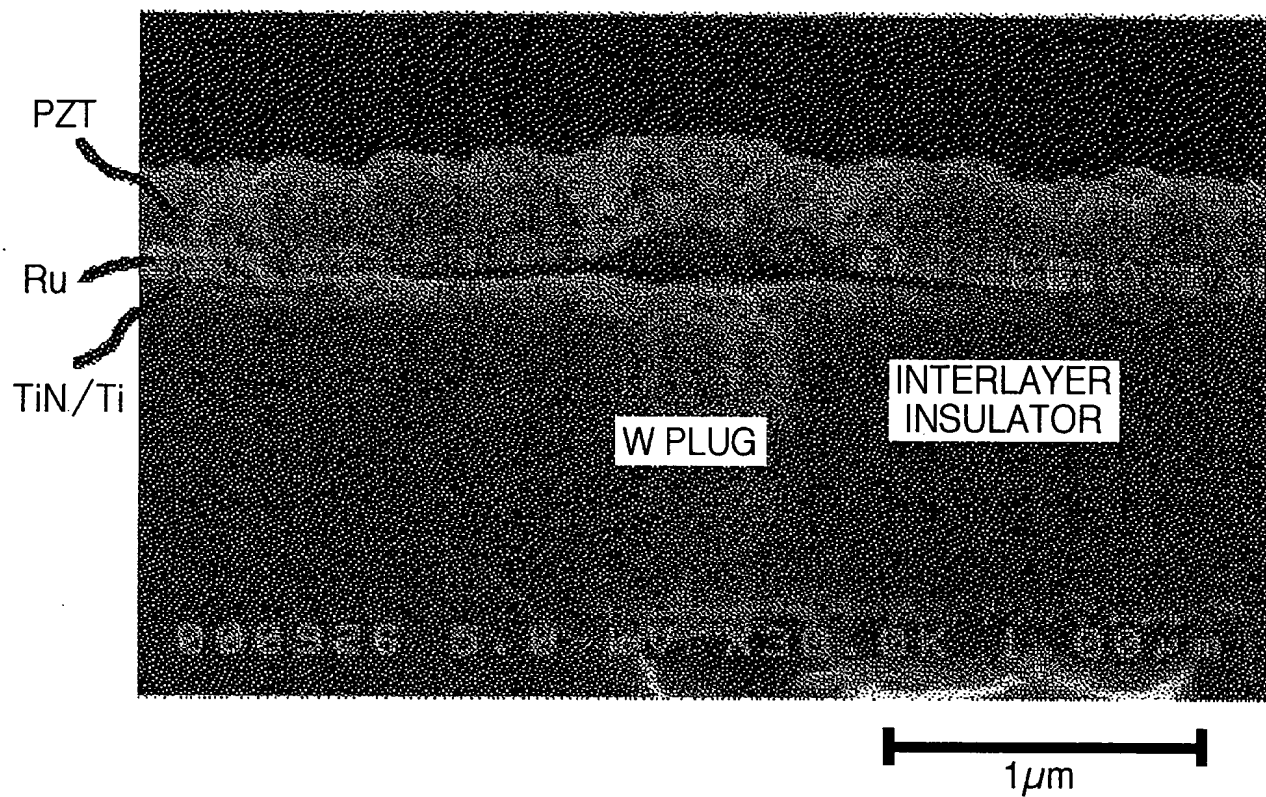


Fig. 8B PRIOR ART

